

The challenge of creating social and technological innovation through system-thinking

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1 Introduction

The Eighth International Conference on EcoBalance (8th ICEB), held December 10–12, 2008 in Tokyo, Japan, was sponsored by the Institute of Life Cycle Assessment, Japan, co-sponsored by the Organisation for Economic Co-operation and Development (OECD), Life Cycle Assessment Society of Japan and Eco-Products 2008.

The 8th ICEB attracted 406 attendees, with participants representing researchers, academia, industrial professionals, and consultants. The 131 foreign participants came from 29 countries, the largest delegation, consisting of 12 people, each, from Korea and Taiwan and smaller delegations from Canada, China, Finland, Germany, Thailand, USA, UK, Malaysia, Switzerland, Australia, France, India, Italy, The Netherlands, Norway, Hong Kong, Indonesia, New Zealand, Poland, Spain, Sweden, Austria, the Czech Republic, Denmark, Lithuania, and Turkey.

The International Conference on EcoBalance has been held biannually since 1994, playing a central role as a global forum for discussions on environmental performance evaluation and

reporting and the development and implementation of assessment methods based on life cycle assessment (LCA). The main theme of the 8th ICEB was “The challenge of creating social and technological innovation through system-thinking.”

The 8th ICEB included 136 platforms and 99 poster presentations that covered a variety of subjects ranging from methodologies, such as LCA, carbon foot print evaluation, eco-efficiency, input–output analysis, and environmental accounting, to applications in the fields of buildings, cars, electronic equipment, and agriculture. The 235 presentations were distributed among the plenary session, seven special platform sessions concentrating on specific subjects, 19 regular platform sessions, and a poster session (Table 1).

In addition, “The Asia-Pacific International Workshop on Industrial Ecology” was held at the “Institute of Industrial Promotion” in Kawasaki, Japan in connection with the 8th ICEB.

This conference report provides highlights of the opening event, plenary session, special sessions, and closing event.

2 Opening event

Prof. Yasunari Matsuno of the University of Tokyo, the Chairman of the 8th ICEB Executive Committee, opened the conference by noting this year’s theme of eco-balance evaluation methodology development and practice, focusing on eco-innovation. Following the opening address, Prof. Ryoichi Yamamoto of the University of Tokyo, President of the Institute of Life Cycle Assessment, Japan, and Prof. Matthias Finkbeiner of the Technische Universität, Berlin, Chairman of International Advisory Board of the 8th ICEB

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site: <http://www.sntt.or.jp/ecobalance8/>

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Table 1 Sessions and the number of presentations at the 8th ICEB

Sessions		Number of presentations
Plenary session		3
Special Platform Sessions	Reduction of CO ₂ emission—carbon foot print and carbon offset	3
	Potential and role of biofuels through life cycle thinking	11
	Material strategy for sustainable development	10
	Sustainable agriculture and food (OECD Session)	17
	Eco-efficiency and other indexes for measuring sustainability	11
	International standardization of material flow cost accounting, and development of EcoBalance management	5
	Frontiers of accounting matrices and analytical models for establishing a dematerialized economy (AM2)	10
	Sub total	67
Regular Platform Sessions	Database and software	4
	Approaches for sustainability (1)	4
	Approaches for sustainability (2)	2
	Sustainable city planning	3
	Life cycle impact assessment	4
	Sustainable consumption	3
	LCA methodology	4
	Waste management	2
	Life cycle inventory analysis	4
	Waste management and recycling (1)	4
	Waste management and recycling (2)	4
	Policy and regulation	4
	Industrial ecology	4
	Decision making for sustainability	2
	Education and sociology	4
	Technologies for energy and resource conservation	2
	Environmental information disclosure, eco-labeling	4
	Environmental accounting	4
	Regional application of industrial ecology in Asian cities	4
	Subtotal	66
Poster Session		99
Total		235

remarked on the opening address. Prof. Finkbeiner suggested that one challenge facing the participants of the 8th ICEB is establishing a balance between market relevance, communicability and the “environmental truth” of scientific validity.

3 Plenary session

3.1 Plenary lecture 1

Doctor Hiroyuki Yoshikawa, president of the National Institute of Advanced Industrial Science and Technology (AIST), discussed the relationship between “Scientific Technology and Social Technology.” His lecture consisted

of the following topics: (a) technological aspects of sustainability, (b) evolution of society toward sustainability, (c) social technology, and (d) technological processes to promote sustainability. Dr. Hiroyuki Yoshikawa introduced the concept of social technology, which is used to introduce and disseminate social artifacts. Technology used to introduce a cultural product to society is called psychical technology, biological technology is used for medical products, and physical technology is used for industrial products. Dr. Hiroyuki Yoshikawa then discussed the importance of social technology, which is the integration of the three aspects. On a final note, he addressed the challenges facing AIST to provide an example of how technological processes promote sustainability.

3.2 Plenary lecture 2

The second plenary session lecture, “Toward a sound material-cycle society,” was presented by Hirokazu Yoshikawa, the chairman & CEO of DOWA Holdings Co., Ltd. and chairman of subcommittee on waste management and recycling in Nippon Keidanren (Japan Business Federation). He discussed Nippon Keidanren’s mission of working toward a sound material-cycle society, focusing on Nippon Keidanren’s action plan for the environment. His presentation examined the metal mining and refinery technology activities of the Dowa Group, which supports the establishment of a sound material-cycle society. The business interests of the Dowa Group have recently diversified from mining to environmental technology and metal recycling. The Dowa Group has faced challenges in transferring environmental technologies into China and establishing international resource circulation through recycling networks in Asia. Hirokazu Yoshikawa concluded his lecture with remarks on Dowa’s commitment to furthering a recycling society, “Putting together our expertise in recycling, solid waste treatment and soil remediation, we work to advance recycling technologies that can create a sustainable infrastructure where environment and economy can coexist in harmony.”

3.3 Plenary lecture 3

Dr. Graham Sinden, technical manager of The Carbon Trust, presented a lecture on “Supply chain carbon footprinting—international standard development and implementation.” He introduced the concept of supply chain carbon footprinting and discussed the importance of international standardization. A supply chain carbon assessment evaluates greenhouse gas (GHG) emissions released as a result of consumption, based on the whole life cycle of an object, from production to consumption. Establishing an internationally agreed upon supply chain carbon footprinting approach will support effective decision making regarding emissions assessment and reduction. His lecture highlighted the importance of evaluating of emissions arising from consumption, not only production. Current international approaches to carbon footprinting may be misleading and may have exacerbated the production of GHG emissions. Supply chain carbon footprinting adopts a consumption view of emissions production. Dr. Sinden concluded that harmonization between different initiatives is necessary and that the opportunity exists to use current activities to inform future developments. However, the consistency of methodologies among countries is key to obtaining consistent carbon estimates.

4 Special platform sessions

4.1 Reduction of CO₂ emission—carbon foot print and carbon offset

Recently, the practical application of carbon labels to indicate the total CO₂ emissions of products during their lifecycle has been initiated in the UK, with trials conducted in Japan. This platform session introduced and discussed industrial activities related to carbon labeling and future strategies.

The emissions reduction session consisted of three presentations. First, Dr. Graham Sinden of the Carbon Trust in the UK discussed Carbon Knowledge, which was identified as information needed for decision making through life cycle GHG assessment and communication. Implementation of product carbon footprinting provides organizations with an effective method of understanding sources of emissions among products, identifying key opportunities to reduce these emissions, and engage with customers and consumers over the GHG impacts of the products they are consuming. For consumers, requiring information on the GHG impacts of their purchasing choices provides greater information and transparency of the impacts of goods and services, and sends a powerful message to businesses regarding the importance of product GHG emissions in their consumption decisions. Based on these assumptions, the Carbon Trust introduced PAS2050 as a standard for calculating GHG emissions. The code of practice, which was also provided by the Carbon Trust, showed how the producer communicates with consumers in the field of CO₂ reduction using the carbon footprint.

During the second presentation, Dr. Masayuki Kanzaki described the preliminary trial of a carbon footprint program conducted by Mr. Yasushi Kaji and others. In Japan, the preliminary trial of the carbon footprint project was conducted in 2008 with support from METI. The trial included 30 enterprises, for which the carbon footprints of 62 commercial goods, such as food, beverage, and other commodities, were calculated. The primary data were collected at production sites, and the secondary data were assessed by the secretariat of the project. The carbon footprint guidelines were drafted by the rule deliberation committee and included definition and scope, calculation policy, labeling policy, and a framework for ensuring credibility. These guidelines provide a basic product category rule for all products.

The last presentation of the session, entitled “Sharing Environmental Information and Conducting Carbon Offsets,” was given by Prof. Norihiro Itsubo. He described previous environmentally conscious events that strived toward the reduction of GHGs emissions. For example, a number of events such as the 2006 Winter Olympic Games

in Torino, Italy, the FIFA World Cup, and the G8 Summit in Hokkaido, Japan adopted carbon offset programs, but there was little consensus on the scope of the assessments or procedures. In Prof. Itsubo's presentation, the carbon footprints of the Tokyo Marathon and an annual festival at the university were calculated using a hybrid approach. The results showed that the infrastructure for assessment, including database and technological tools, is still limited.

A follow-up session included discussion of (a) the standardization of carbon footprint assessment methodologies, (b) the benefits of carbon footprinting, and (c) the evaluation of other environmental impacts. The standardized methodology is being developed under a new ISO/TC207/SC7WG2 standard, 14067, and World Resources Institute GHG protocol. The benefits of applying carbon footprinting include the ability of producers to communicate their GHG reduction efforts to consumers and the influence on consumer product choices. In addition, although other impacts, such as acidification and human toxicity, can be evaluated using LCA, climate change is currently targeted by governments throughout the world. The carbon footprint assessment may provide a useful example for producers and consumers to use LCA to evaluate other environmental issues in the future.

4.2 Potential and role of biofuels through life cycle thinking

Recent efforts to increase the use of biofuels for energy security and to help mitigate global warming were presented in this session. Biofuel utilization issues using LCA methods, including impacts on environmental emissions, energy balance, GHG emissions, land use and impact upon health, were addressed by the 11 presenters.

Two presentations described the evaluation of biofuel sustainability using LCA. Dr. Shabbir H. Gheewala (King Mongkut's University of Technology Thonburi, Thailand), an invited speaker, proposed that the application of certain aspects of LCA, such as the standardization of system boundaries and sustainability assessments, and the development of an indicator to capture environmental, social and economic aspects surrounding biofuels, is required for the assessment of biofuels sustainability. Dr. Martin Baitz (PE International GmbH, Germany) explained that, although biofuels are potentially important future energy sources, they are still "pre-schoolers" when compared with the conventional fuels. LCA verification is necessary for biofuel sustainability certification in order to prevent incorrect applications for biofuel assessments.

Other presentations addressed the evaluation of biofuels utilization using LCA methods for the fuel production and supply stages. Feedstocks, such as cellulosic biomass, wastes, or energy crops, and biofuels, such as ethanol, FT diesel, methane, and hydrogen, were evaluated on a macroscopic scale using the framework of well to wheel analysis or input–

output tables. Among them, two presentations evaluated the biofuels production process on a microscopic scale or mesoscale based on raw data obtained from their experiments.

4.3 Material strategy for sustainable development

Strategies for establishing a society that enhances resource productivity while focusing on the potentials of eco-innovation, supported by material technologies and their efficient application, were the focus of the next session. Research studies related to material strategies were presented, including case studies concerning eco-innovations in material technologies, and system and resource productivity analyses, which applied material flow analyses and material stock accounts. The co-organizer of this session, Dr. Shinsuke Murakami, provided background information for this session. The special session consisted of three sub-sessions.

In the first sub-session, four Japanese researchers presented their findings. Dr. Murakami of the University of Tokyo focused on indirect trade flows. Dr. Adachi from the University of Tokyo presented information concerning recent efforts in the area of mineral economics and Japanese resource policies. In response to a question regarding the prioritization of metal use based on scarcity, Dr. Adachi explained that scarce metals should be addressed in the short term, while the supply of more common metals will require planning in the long term. Dr. Takeda also discussed the recovery of metals in smelters, showing the potential use of secondary resources. The final presentation of the first sub-session, by Dr. Hirai of Kyoto University, focused on species-specific intake fractions of mercury, and explained the toxic side of the metal lifecycle.

In the second sub-session, two invited speakers described their recent research experiences. Dr. Heinz Schandal of Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) reported on his recent study of the potential of dematerialization in Australia, which used his simulation model to evaluate the impacts of employment and other economic factors. Dr. Nakamura from Waseda University talked about recent material flow analysis methodologies, especially of the waste input–output material flow analysis. In the third sub-session, four researchers made presentations. Dr. Hashimoto of the National Institute for Environmental Studies (NIES) focused on the framework of material stock accounting (MSA) for material accumulation assessment in the economic sphere. Then, Dr. Yamasue from Kyoto University presented a method for evaluating elemental recyclability based on the concept of urban-ore total material requirement and its application to e-waste. Professor Juha Kaila described the innovations in creating a recycling society developed by the TKK Lahti Center. The final presentation of the third sub-session, by Kakiuchi, focused on the future demand for steel in East Asia.

4.4 Sustainable agriculture and food (OECD session)

Public interest in sustainable agriculture and food systems has resulted in increased information regarding agri-environmental issues related to organic agriculture, biodiversity and landscape, carbon sequestration, and nitrate pollution. Attaining the sustainability of globalized food systems requires understanding of concepts, such as local production for local consumption, food and health, starvation and satiation, and corporate governance. The sustainable agriculture session, organized by the OECD Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems, provided insight into a wide range of approaches to sustainable agricultural production and food consumption using life cycle thinking.

The 17 presentations were distributed among four sub-sessions. After a presentation by Dr. Gary Fitt (CSIRO), a theme coordinator for the OECD Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems, Dr. Kiyotada Hayashi (National Agriculture and Food Research Organization) introduced the special session, which was focused on sustainable agriculture. The structure of the session was organized as follows: (1) modeling, (2) coping with time and space, (3) management in practice and (4) carbon management.

Part 1 explored modeling in LCA for agriculture and food. Dr. Bastian Wittstock (University of Stuttgart) described a UNEP/SETAC life cycle initiative project for modeling of land use impacts on biodiversity and ecosystems services. Dr. Adrian Williams (Cranfield University) outlined system modeling applied to LCA of agricultural and horticultural commodities. Dr. Jyri Seppala (Finnish Environmental Institute) explained preference modeling in life cycle impact assessment and pointed out the similarity between LCA and decision analysis based on multi-attribute value functions.

Part 2 addressed methods for including time and space variables in the life cycle approach. Dr. Santiago Lopez-Ridaura of the French National Institute for Agricultural Research (INRA) made a presentation on how to couple dynamic simulation models with LCA and assessed several scenarios concerning manure management. Dr. Shoichi Kiyama (Kyoto University) described the impact assessment of an agricultural subsidy policy on sustainable rural development and watershed water quality. Dr. Stephan Pfister (ETH Zurich) discussed the possibility of environmental product labels based on regional LCAs that could provide compensation information and presented the results of case studies on vegetable and fruit production. Dr. Tatsuo Hishinuma (AIST) evaluated GHG emissions from a manure treatment system for a biogas plant utilizing fallow agricultural land in Yamada, Japan.

Part 3 investigated topics related to management in practice. Dr. Claudine Basset-Mens (Cemagref) reviewed the frameworks for LCA and sustainability assessment and stressed the importance of developing a unique set of social LCA indicators and of increased attention to reliability and accuracy issues. Dr. John E. Hermansen (University of Aarhus) talked about sustainable agricultural practices based on the life cycle approach and pointed out the necessity of motivation for changing practices and the existence of two paths including vertical and horizontal integration. Dr. Assumpció Anton (IRTA) presented the results of a survey on LCA applied to horticultural management and showed the necessity for further research on impact assessment related to land use, water use, and pesticide toxicity. Dr. Gérard Gaillard (Agroscope) described recent research on LCA by the Farm Accountancy Data Network (FADN) and showed why LCA is important in efficient environmental management.

Carbon management in agriculture was the theme of Part 4. Dr. Sonoko D. Kimura (Tokyo University of Agriculture and Technology) spoke about the influence of manure and crop residue treatments on carbon sequestration of Japanese farmland soils and concluded that manure and residue application could increase the average amount of carbon input to farmland soil in Japan. Dr. Nobuhisa Koga (National Agriculture and Food Research Organization) presented recent research progress on determining GHG emissions attributable to an arable farming system in Hokkaido and showed that manure application has the positive impact. Dr. Yoshiyuki Shinogi (National Agriculture and Food Research Organization) analyzed the regional biomass flows to determine the present biomass production and use situation in Thailand. Ms. Paola Jennifer Bocardo (Tokyo University of Agriculture and Technology) compared the burning cane and the green cane in Brazil using carbon balance indicators and described the labor conditions and economic situation in Brazil.

The policy implications of this special session will be summarized as a draft OECD Policy Brief based on discussions during the concluding session on Friday, December 12.

4.5 Eco-efficiency and other indexes for measuring sustainability

Eco-efficiency is used as a comparative evaluation method for environmental impacts from industry. Currently, the evaluation methodology is not uniform, and stakeholders, including consumers, cannot determine which product to purchase. This session focused on the methodology and accessibility of eco-efficiency and other sustainability indexes, with the goal of promoting sustainable development.

The eco-efficiency session consisted of 11 presentations distributed among three sub-sessions. The first sub-session

addressed new sustainability assessment methodologies and tools. Invited speaker Professor Patrick Egan, from the University of Wisconsin, analyzed a business strategy for GHG reduction in industry. The results showed a strong relationship between the deployed strategies and the reductions in GHG emissions. The study also proposed practical step-by-step actions related to ISO 14001 for each industrial sector. Prof. Mattias Finkbeiner, from Technische Universität Berlin, introduced two methodologies, one comparing resource indicators using correlation analysis, and another, comparing environmental indicators, for which he proposed a new environmental indicator scoring method. Dr. M. Hara, from NTT, and Dr. V. Barnole, from France Telecom, jointly introduced a new assessment tool to evaluate corporate social responsibility (CSR) management and training for companies.

The second sub-session presented case studies that used sustainability indexes. Dr. K. Hara and Dr M. Uwasu from Osaka University presented two different approaches to evaluating the sustainability of cities as applied to Chinese provinces and capital cities, focusing on resource consumption, environmental impacts, and socio-economic viewpoints. Mr. C. Ryman, from the Centre for Process Integration in Steelmaking, presented a case study of the eco-efficiencies in the iron and steelmaking industries, focusing on process integration. Ms. K. Takahashi, from NTT, presented the eco-efficiency of video conference systems.

The third sub-session addressed developing methodologies and case studies. Dr. M. Tsuda, from NTT, proposed a relationship model between CSR activities and corporate profit. Dr. T. Takai, from AIST, proposed an analysis methodology on eco-efficiency for local government, focusing on the changes over time. Mr. N. Dlamini, from Kyoto University, presented a practical case study of households.

4.6 International standardization of material flow cost accounting and development of ecobalance management

Material flow cost accounting (MFCA) is an environmental management accounting tool. ISO/TC207, which has responsibility for the ISO14000 family of standards, established Working Group 8 to develop a new guideline on MFCA that will be published in 2011 as ISO 14051. The MFCA session focused on the International Standardization of MFCA and the potentials of MFCA methodology for EcoBalance and Life Cycle Thinking.

This session consisted of five presentations, including the invited presentation, “Using International Standards to Implement Innovations in Environmental Management Accounting: the case of materials flow cost accounting,” presented by Prof. Martin Bennett (University of Gloucestershire Business School). The presentations addressed the following aspects:

tershire Business School). The presentations addressed the following aspects:

1. Introduction to the MFCA.
2. Comparisons between MFCA and traditional cost and management accounting.
3. Two case studies on the application of MFCA at two major Japanese companies as a means of identifying and reporting the costs of wastes and supporting actions to managers to improve material efficiency with economic benefits for the companies, and wider environmental benefits through the reduced consumption and waste of resources. These globally focused case studies described the material efficiency of processes internal to the companies and along their supply chains.
4. The framework for the future development of MFCA, relating this to eco-efficiency and life-cycle thinking.

Participants in the special session also discussed the characteristics of MFCA as compared with conventional cost management methods, the different possible ways in which MFCA could be introduced to businesses as a new management method and how ISO 14051 could be structured to support this goal, and the potential for the practical application of MFCA to a life-cycle management approach. A period of active discussion following the presentations covered such issues as the relationship between MFCA and sustainability management and practical implementation of MFCA by companies.

4.7 Frontiers of accounting matrices and analytical models for establishing a dematerialized economy (AM2)

Exploring changeover measures to a dematerialized economy requires tools for grasping the overall condition and structure of resource consumption and environmental impacts caused by economic activities. In addition to appropriate analytical models for comparing future scenarios, it is important to adequately establish accounting systems for understanding the status quo as the starting point of analysis. Analytical models also should be built on those accounting systems. One good example is the application of accounting matrices, particularly environmentally extended input–output tables and models. This session focused on proposals of new accounting matrices and model analysis, as well as leading-edge research on database development.

This session consists of ten presentations, including five invited speakers. Common to most speakers was interest in methods for augmenting accounting matrices and analytical models to address dematerialized economy. In this session, the frontiers of accounting systems were discussed as directions for developing new analytical models for solving environmental problems. Five papers discussed accounting matrices and three papers described analytical models,

while two other papers in another session also contributed to these tasks. In the discussion, the importance of developing an analytical model and accounting framework that reflects brisk economic activity was highlighted.

5 Closing event

5.1 Poster award ceremony

The poster session, in which a total of 99 posters were presented, was held over 2 h on the second day. As part of the preliminary selection, the proceedings were peer-reviewed by the 8th EcoBalance Executive Committee, and nominees were designated for the secondary selection. For the initial peer review process, the author's name, status, and e-mail address were eliminated from the proceedings. The reviewers were not informed of the authors. Then, during the secondary selection, the Poster Award judges comprehensively assessed the nominated posters and chose prize-worthy posters at the Poster Session on December 11, 2008. The Poster Award judges were members of the International Advisory Board (Dr. Martin Baitz, Dr. Matthias Finkbeiner, Dr. Rolf Frischknecht, Dr. Mark J. Goedkoop, Dr. Tak Hur, Dr. Kun-Mo Lee, Dr. Yhu-Ming Lee, and Dr. Thumrongrut Mungcharoen), invited speakers (Prof. Shabbir H. Gheewala, Dr. Heinz Schandl, Prof. Patrick Eagan, Dr. Qiang Liu, Prof. Anders Hammer Strømman, Dr. Witold-Roger Poganietz, and Prof. Sangwon Suh), and Executive Board members of the Institute of LCA, Japan (Prof. Shinichiro Nakamura, Dr. Komei Halada, and Prof. Masahiko Hirao). The Executive Committee selected posters for the Gold Poster Award, Silver Poster Award, and Bronze Poster Award based on the number of votes each poster presentation received.

The Bronze Poster Award and the Silver Poster Award winners were presented a certificate of merit and prize money by the president of the Institute of Life Cycle Assessment, Japan, Prof. Atsushi Inaba. The winners of the Gold Poster Award were awarded a plaque in addition to a certificate of merit and prize money. The Poster Awards winners are listed below.

5.1.1 Gold Poster Award

K. Nakajima, O. Takeda, T. Miki, K. Matsubae-Yokoyama, and T. Nagasaka (2008). Evaluation method for metal

resources recyclability based on thermodynamic analysis for material flow and stock accounting; metallic element distribution among the gas, slag and metal in metallurgical process. Proceedings of the 8th International Conference on EcoBalance, P-089 (CD-ROM), Dec. 10–12, 2008, Tokyo, Japan

5.1.2 Silver Poster Award

H. Hatayama, I. Daigo, Y. Matsuno, Y. Adachi (2008) Assessment of global aluminum recycling using dynamic MFA. Proceedings of the 8th International Conference on EcoBalance, P-090 (CD-ROM), Dec. 10–12, 2008, Tokyo, Japan

5.1.3 Bronze Poster Award

H. Kamahara, A. Widiyanto, R. Tachibana, Y. Atsuta, N. Goto, H. Daimon, K. Fujie (2008) Greenhouse Gas balance on life cycle of biodiesel: a case of palm biodiesel production in Indonesia. Proceedings of the 8th International Conference on EcoBalance, P-083 (CD-ROM), Dec. 10–12, 2008, Tokyo, Japan

5.2 Closing address

Professor Matsuno delivered closing remarks at the end of the session. Although numerous developments and method implementations were described during the conference, participants were aware of methodological problems that required further investigation. Experts in the field of EcoBalance, system thinking, and science and technology for sustainability were encouraged to collaborate with others in the field. Additional efforts drawing the attention of potential users to the EcoBalance methodology are needed. The Institute of Life Cycle Assessment announced the next EcoBalance conference, to be held in Tokyo, 10–12 November 2010. Hiroki Hondo, Yokohama National University, will serve as the next conference chairman.

The authors sincerely request that the readers of this journal continue to support and contribute to ICEB.

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